

## ABSTRACT

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A method for transmitting data without carrier wave, applying short variable wavelength radio or electric impulses. Data is encoded to impulses using pulse width modulation applied for one-cycle impulses. Depending of the impulse receiving process the transmission system uses a kind of hybrid pulse width - pulse position modulation applied for one-cycle impulses in actual impulse transmission. The impulse cue in transmission is divided to channels by picking every  $n$ th impulse for a single channel, or by setting a predetermined order path for each channel which is used to pick impulses. Impulse receiving process distinguishes impulses either by determining an impulse wavelength from the time difference between positive and negative amplitude maximums of an impulse, or by setting an own reception channel for each wavelength of impulse. In the latter type of receiving, it is used the kind of hybrid pulse width - pulse position modulation applied for one-cycle impulses in impulse transmission.

In addition, a method for organizing wireless traffic that uses presented transmission system. A single transmission channel is divided into several sub-channels by allocating different impulse wavelengths for different use. Impulse wavelengths are chosen for specific use according to the needed transmission power and the ability to pass obstacles of different wavelength impulses. The allocation is altered dynamically over time to optimize best overall transmission traffic every moment.